CLAIMS

What is claimed is:

1. A method for division multiplexing of optical signals, the method comprising:

modulating at least one wavelength of a carrier of optical information, by optical frequency division multiplexing said at least one wavelength.

2. The method according to claim 1 wherein said modulating comprises modulating at least one wavelength of a wavelength division multiplexing (WDM) carrier of optical information.

3. The method according to claim 1 wherein said modulating comprises creating at least one additional optical information carrier on said at least one wavelength of said carrier.

4. The method according to claim 1 wherein said modulating comprises creating a plurality of sub-channels on said at least one wavelength of said carrier.

5. The method according to claim 4 wherein said creating comprises creating a plurality of sub-channels that carry different amounts of optical information.

6. The method according to claim 4 wherein said creating comprises creating a plurality of sub-channels that have different bandwidth sizes.

7. The method according to claim 4 wherein said modulating comprises controlling allocation of at least one of bandwidth size and optical information capacity to at least one user.

8. The method according to claim 1 wherein said modulating comprises operating at a data rate of around 1 GHz.

9. The method according to claim 1 and further comprising frequency up-converting, in an optical domain, optical information emanating from a laser channel of said carrier.

10. The method according to claim 9 wherein said up-converting comprises up-converting said optical information with a frequency different than a frequency of said carrier.

11. The method according to claim 9 wherein said up-converting comprises up-converting said optical information with a carrier frequency uniquely associated with an address of a receiver of said optical information.

12. The method according to claim 10 wherein said up-converting comprises up-converting with a resonant electro-optical modulator.

13. The method according to claim 1 and further comprising adding a sub-channel to said carrier while in an optical domain.

14. The method according to claim 1 and further comprising dropping a sub-channel to said carrier while in an optical domain.

15. The method according to claim 10 and further comprising frequency down-converting, in an optical domain, the up-converted optical information.

16. The method according to claim 15 wherein said down-converting comprises down-converting with a resonant electro-optical modulator.

17. The method according to claim 4 wherein said creating a plurality of sub-channels comprises splitting a laser output of a laser by an optical splitter.

18. The method according to claim 4 wherein said modulating comprises modulating said optical information externally with an external modulator.